

## STATE OF TENNESSEE DEPARTMENT OF HEALTH **ENVIRONMENTAL LABORATORIES**

TDH: Lab Services JRL Lab Services - Jackson Regional Lab Jackson, TN 38301 731-426-0686

TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201

TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

Greg Denton

TDEC-WPC

6th Floor, L & C Tower Annex

401 Church Street

Nashville, TN 37243-1534

Michael Atchley TDEC-WPC

Knoxville FO

3711 Middlebrook Pike Knoxville, TN 37921

Lab ID: K00002891

**Knoxville Regional Laboratory** 

Sampling Agency: TDEC: Division of Water Pollution Control

**Billing Code:** 

327.34-20

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

halytical Supervisor

K00002891001

**Project Name:** 

TVA-Ash Spill

**Sample Description:** 

Emory River Mile 12.1

Sampler Project Name: TVA Ash Spill

**Project Site No.:** 

Station No.: Date/Time Collected: EMORY012.1RO

Sampler's Name:

09/22/2009 13:13 Geoff Klein

County:

ROANE - 73

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville

**Billing Code:** 

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced: TDEC-WPC TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009

14:20

Received By:

E McCrary

**Field Determinations** 

pH:

7.42

pH Units

Chlorine, residual:

Conductivity:

62

uMHO

Temperature:

21.31

Dissolved Oxygen: 9.06

mg/L

Other:

Flow:

TEST: Digestion Metals	MET	HOD: EPA 20	0.2	-		
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	09/23/2009				M Pattanayek	9/23/2009

TEST: ICP		METHOD: EPA 200.7						
ANALYTE		RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Iron	<b>.</b>	480	μg/L	2.9	10	A Wilson	10/4/2009	

TEST: ICP-MS	MET	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	200	μg/L	6.4	10	M Pattanayek	9/24/2009
Antimony	U	μg/L	0.33	1	M Pattanayek	9/24/2009
Arsenic	U	μg/L	0.93	5	M Pattanayek	9/24/2009
Barium	28	μg/L	2.5	5	M Pattanayek	9/24/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	9/24/2009
Cadmium	Ū	μg/L	0.41	1	M Pattanayek	9/24/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	9/24/2009
Cobalt	0.44J	μg/L	0.04	1 -	M Pattanayek	9/24/2009
Copper	1.8	μg/L	0.38	1	M Pattanayek	9/24/2009
Lead	0.44J	μg/L	0.10	1	M Pattanayek	9/24/2009
Manganese	52	μg/L	0.42	1	M Pattanayek	9/24/2009
Nickel	1.6	μg/L	0.25	1	M Pattanayek	9/24/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	9/24/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	9/24/2009
Thallium	0.078J	μg/L	0.03	1	M Pattanayek	9/24/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	9/24/2009
Zinc	4.3J	μg/L	1.9	5	M Pattanayek	9/24/2009

K00002891001

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River Mile 12.1

Sampler Project Name: TVA Ash Spill

**Project Site No.:** 

Station No.:

EMORY012.1RO

Date/Time Collected:

09/22/2009 13:13

Sampler's Name: County:

Geoff Klein ROANE - 73

Sample Matrix:

Water.

EFO: Sampling Agency: Knoxville

**Billing Code:** 

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced: TDEC-WPC TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009

14:20

Received By:

**TEST: Mercury** 

E McCrary

MET	HOD:	EPA	245.1	

**Field Determinations** 

Dissolved Oxygen: 9.06

Chlorine, residual:

Conductivity:

Temperature:

7.42

62

21.31

pH Units

uMHO

mg/L

**CFS** 

pH:

Other:

Flow:

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	A Bass	10/5/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

MQL - Method Quantitation Limit

K00002891002

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 2.1

Sampler Project Name: TVA Ash Spill

Project Site No.:

Station No.:

Date/Time Collected:

EMORY002.1RO

Sampler's Name:

09/22/2009 11:00

County:

Geoff Klein

Sample Matrix:

ROANE - 73 Water

EFO: Sampling Agency: Knoxville TDEC-WPC

**Billing Code:** Send Report To: Agency Invoiced: 327.34-20 TDEC-WPC TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009 14:20

Received By:

E McCrary

Temperature:	20.77	
Dissolved Oxygen:	8.06	mg/L

Conductivity: 69

**Field Determinations** 

Chlorine, residual:

Dissolved Oxygen: 8.06

Other:

:Ha

Flow: **CFS** 

7.05

pH Units

uMHO

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	09/23/2009				M Pattanayek	9/23/2009

TEST: ICP	METHOD: EPA 200.7						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Iron	960	μg/L	2.9	10	A Wilson	10/4/2009	

TEST: ICP-MS	MET	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	380	μg/L	6.4	10	M Pattanayek	9/24/2009
Antimony	0.57J	μg/L	0.33	1	M Pattanayek	9/24/2009
Arsenic	U	μg/L	0.93	5	M Pattanayek	9/24/2009
Barium	33	μg/L	2.5	5	M Pattanayek	9/24/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	9/24/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	9/24/2009
Chromium	2.2J	μg/L	2.0	5	M Pattanayek	9/24/2009
Cobalt	0.58J	μg/L	0.04	1	M Pattanayek	9/24/2009
Copper	1.3	μg/L	0.38	1	M Pattanayek	9/24/2009
Lead	0.84J	μg/L	0.10	1	M Pattanayek	9/24/2009
Manganese	73	μg/L	0.42	1	M Pattanayek	9/24/2009
Nickel	2.1	μg/L	0.25	1	M Pattanayek	9/24/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	9/24/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	9/24/2009
Thallium	0.16J	μg/L	0.03	1	M Pattanayek	9/24/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	9/24/2009
Zinc	3.2J	μg/L	1.9	5	M Pattanayek	9/24/2009

K00002891002

**Project Name:** 

TVA-Ash Spill

Sample Description:

Sampler Project Name: TVA Ash Spill

Emory River mile 2.1

**Project Site No.:** 

Station No.:

EMORY002.1RO

Date/Time Collected: Sampler's Name:

09/22/2009 11:00 Geoff Klein

County:

ROANE - 73

Sample Matrix:

EFO:

Water

Sampling Agency:

Knoxville

**Billing Code:** Send Report To: TDEC-WPC 327.34-20

Agency Invoiced:

TDEC-WPC TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009

14:20

Received By:

**TEST: Mercury** 

E McCrary

M	FTH	OD.	FΡΔ	245 1	

**Field Determinations** 

Chlorine, residual:

**Dissolved Oxygen: 8.06** 

Conductivity:

Temperature:

7.05

69

20.77

pH Units

uMHO

mg/L

CFS

pH:

Other:

Flow:

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	A Bass	10/5/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

K00002891003

**Project Name:** 

TVA-Ash Spill

Sample Description:

Approx. 100' d/s from middle dredge point

**Project Site No.:** 

Sampler Project Name: TVA Ash Spill

2A

Station No.:

Dredge Plume

**Date/Time Collected:** 

09/22/2009 11:15

Sampler's Name:

Geoff Klein

County:

ROANE - 73

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville TDEC-WPC

**Billing Code:** Send Report To: 327.34-20 TDEC-WPC

Agency Invoiced:

TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009 14:20

Received By:

E McCrary

**Field Determinations** 

pH:

7.05

pH Units

Chlorine, residual:

Conductivity:

88

uMHO

Temperature: Dissolved Oxygen: 7.54

21.14

mg/L

Other:

Flow:

TEST: Digestion Metals	MET	HOD: EPA 20	0.2			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	09/23/2009				M Pattanayek	9/23/2009

TEST: ICP	METHOD: EPA 200.7					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	1000	μg/L	2.9	10	A Wilson	10/4/2009

TEST: ICP-MS	MET	THOD: EPA 20	0.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Aluminum	730	μg/L	6.4	10	M Pattanayek	9/24/2009	
Antimony	0.67J	μg/L	0.33	1	M Pattanayek	9/24/2009	
Arsenic	6.4	μg/L	0.93	5	M Pattanayek	9/24/2009	
Barium	63	μg/L	2.5	5	M Pattanayek	9/24/2009	
Beryllium	0.21J	μg/L	0.11	1	M Pattanayek	9/24/2009	
Cadmium	U	μg/L	0.41	1	M Pattanayek	9/24/2009	
Chromium	3.8J	μg/L	2.0	5	M Pattanayek	9/24/2009	
Cobalt	0.89J	μg/L	0.04	1	M Pattanayek	9/24/2009	
Copper	4.4	μg/L	0.38	1	M Pattanayek	9/24/2009	
Lead	1.5	μg/L	0.10	1	M Pattanayek	9/24/2009	
Manganese	73	μg/L	0.42	1	M Pattanayek	9/24/2009	
Nickel	2.5	μg/L	0.25	1	M Pattanayek	9/24/2009	
Selenium	U	μg/L	1.3	5	M Pattanayek	9/24/2009	
Silver	U	μg/L	0.03	0.25	M Pattanayek	9/24/2009	
Thallium	0. <b>2</b> 5J	μg/L	0.03	1	M Pattanayek	9/24/2009	
Vanadium	5.6	μg/L	3.4	5	M Pattanayek	9/24/2009	
Zinc	8.8	μg/L	1.9	5	M Pattanayek	9/24/2009	

K00002891003

**Project Name:** 

TVA-Ash Spill

Sample Description:

Approx. 100' d/s from middle dredge point

Sampler Project Name: TVA Ash Spill

**Project Site No.:** 

2A

**Station No.:** 

Dredge Plume

**Date/Time Collected:** 

09/22/2009 11:15

Sampler's Name: County:

Geoff Klein

Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville

**Billing Code:** 

**TDEC-WPC** 327.34-20

Send Report To: Agency Invoiced:

TDEC-WPC TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009

14:20

Received By:

E McCrary

TEST: Mercury METHOD: EPA 245.1						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	0.07J	μg/L	0.029	0.2	A Bass	10/5/2009

**Field Determinations** 

Dissolved Oxygen: 7.54

Chlorine, residual:

Conductivity:

Temperature:

7.05

88

21.14

pH Units

uMHO

mg/L

**CFS** 

pH:

Other:

Flow:

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

K00002891004

**Project Name:** Sample Description: TVA-Ash Spill

Sampler Project Name: TVA Ash Spill

Emory River mile 1.9 at underwater weir

**Project Site No.:** 

Station No.:

2B

EMORY001.9RO 09/22/2009 11:24 Date/Time Collected:

Sampler's Name: County:

Geoff Klein

Sample Matrix: EFO:

ROANE - 73 Water

Sampling Agency: Billing Code: Send Report To:

Knoxville TDEC-WPC 327.34-20 TDEC-WPC TDEC-WPC

Agency Invoiced: **Priority Date:** 

Date/Time Received:

09/22/2009 14:20

Received By:

E McCrary

**Field Determinations** 

pH:

6.98 pH Units

Chlorine, residual:

Conductivity:

74

**uMHO** 

Temperature:

20.92

Dissolved Oxygen: 7.84

mg/L

Other:

Flow:

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	RESULT UNITS MDL MQL A				
Digestion Metals	09/23/2009				M Pattanayek	9/23/2009

TEST: ICP	: ICP METHOD: EPA 200.7						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Iron	960	μg/L	2.9	10	A Wilson	10/4/2009	

TEST: ICP-MS	ME	THOD: EPA 20	0.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Aluminum	540	μg/L	6.4	10	M Pattanayek	9/24/2009	
Antimony	0.38J	μg/L	0.33	1	M Pattanayek	9/24/2009	
Arsenic	3.4J	μg/L	0.93	5	M Pattanayek	9/24/2009	
Barium	47	μg/L	2.5	5	M Pattanayek	9/24/2009	
Beryllium	0.15J	μg/L	0.11	1	M Pattanayek	9/24/2009	
Cadmium	U	μg/L	0.41	1	M Pattanayek	9/24/2009	
Chromium	2.1J	μg/L	2.0	5	M Pattanayek	9/24/2009	
Cobalt	0.74J	μg/L	0.04	1	M Pattanayek	9/24/2009	
Copper	3.9	μg/L	0.38	1	M Pattanayek	9/24/2009	
Lead	1.2	μg/L	0.10	1	M Pattanayek	9/24/2009	
Manganese	69	μg/L	0.42	1	M Pattanayek	9/24/2009	
Nickel	2.3	μg/L	0.25	1	M Pattanayek	9/24/2009	
Selenium	U	μg/L	1.3	5	M Pattanayek	9/24/2009	
Silver	U	μg/L	0.03	0.25	M Pattanayek	9/24/2009	
Thallium	0.20J	μg/L	0.03	1	M Pattanayek	9/24/2009	
Vanadium	υ	μg/L	3.4	5	M Pattanayek	9/24/2009	
Zinc	13	μg/L	1.9	5	M Pattanayek	9/24/2009	

K00002891004

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 1.9 at underwater weir

Sampler Project Name: TVA Ash Spill

**Project Site No.:** 

2B

**Station No.:** 

**Date/Time Collected:** 

EMORY001.9RO 09/22/2009 11:24

Sampler's Name:

Geoff Klein

County:

ROANE - 73

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville TDEC-WPC 327.34-20

**Billing Code:** Send Report To: Agency Invoiced:

TDEC-WPC TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009

14:20

Received By:

**TEST: Mercury** 

E McCrary

METH	HOD: EP.	Α	245.1	

**Field Determinations** 

**Dissolved Oxygen:** 7.84

Chlorine, residual:

Conductivity:

Temperature:

6.98

74

20.92

pH Units

**uMHO** 

mg/L

CFS

pH:

Other:

Flow:

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	A Bass	10/5/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002891005

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 1.7

Sampler Project Name: TVA Ash Spill

**Project Site No.:** 

**Station No.:** EMORY001.7RO Date/Time Collected: 11:38

Sampler's Name:

09/22/2009 Geoff Klein

County:

ROANE - 73

Sample Matrix: EFO:

Water Knoxville

Sampling Agency: Billing Code:

TDEC-WPC 327.34-20 TDEC-WPC

Send Report To: Agency Invoiced:

TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009

14:20

Received By:

E McCrary

**Field Determinations** 

pH:

6.95

pH Units

uMHO

Chlorine, residual:

Conductivity:

78

Temperature: Dissolved Oxygen: 7.69

21.03

mg/L

Other:

Flow:

TEST: Digestion Metals	MET	HOD: EPA 20	0.2			
ANALYTE	RESULT	UNITS	MDL.	MQL	ANALYZED BY:	DATE
Digestion Metals	09/23/2009				M Pattanayek	9/23/2009

TEST: ICP	ME.	ΓHOD: EPA 20	0.7		·	
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	1000	μg/L	2.9	10	A Wilson	10/4/2009

TEST: ICP-MS	ME	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	660	μg/L	6.4	10	M Pattanayek	9/24/2009
Antimony	U	μg/L	0.33	1	M Pattanayek	9/24/2009
Arsenic	U	μg/L	0.93	5	M Pattanayek	9/24/2009
Barium	42	μg/L	2.5	5	M Pattanayek	9/24/2009
Beryllium	0.11J	μg/L	0.11	1	M Pattanayek	9/24/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	9/24/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	9/24/2009
Cobalt	0.85J	μg/L	0.04	1	M Pattanayek	9/24/2009
Copper	3.2	μg/L	0.38	1	M Pattanayek	9/24/2009
Lead	1.3	μg/L	0.10	1	M Pattanayek	9/24/2009
Manganese	79	μg/L	0.42	1	M Pattanayek	9/24/2009
Nickel	2.6	μg/L	0.25	1	M Pattanayek	9/24/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	9/24/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	9/24/2009
Thallium	0.17J	μg/L	0.03	1	M Pattanayek	9/24/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	9/24/2009
Zinc	5.9	μg/L	1.9	5	M Pattanayek	9/24/2009

K00002891005

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 1.7

Sampler Project Name: TVA Ash Spill

**Project Site No.:** 

Station No.:

EMORY001.7RO

Date/Time Collected:

09/22/2009 11:38

Sampler's Name:

Geoff Klein

County:

ROANE - 73

Sample Matrix:

Water

EFO: Sampling Agency: Knoxville

Billing Code: Send Report To: TDEC-WPC 327.34-20 TDEC-WPC

Agency Invoiced:

TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009

14:20

Received By:

E McCrary

**Field Determinations** 

pH:

6.95

pH Units

**uMHO** 

Chlorine, residual:

Conductivity:

78

Temperature: 21.03 Dissolved Oxygen: 7.69

mg/L

Other:

Flow:

CFS

TEST: Mercury	METHOD: EPA 245.1						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Mercury	U	μg/L	0.029	0.2	A Bass	10/5/2009	

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002891006

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 0.1

Sampler Project Name: TVA Ash Spill

**Project Site No.:** 

Station No.: EMORY000.1RO

Date/Time Collected: Sampler's Name:

09/22/2009 11:51

County:

Geoff Klein

Sample Matrix:

ROANE - 73

EFO: Sampling Agency: Water Knoxville

Billing Code:

TDEC-WPC 327.34-20 TDEC-WPC

Send Report To: Agency Invoiced:

TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009 14:20

Received By:

E McCrary

**Field Determinations** 

pH:

7.04

pH Units

Chlorine, residual:

Conductivity:

99

uMHO

Temperature:

22.02 **Dissolved Oxygen:** 7.25

mg/L

Other:

Flow:

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	09/23/2009				M Pattanayek	9/23/2009

TEST: ICP	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	470	μg/L	2.9	10	A Wilson	10/4/2009

TEST: ICP-MS	MET	THOD: EPA 20	0.8				
ANALYTE	RESULT	UNITS MDL		MQL	ANALYZED BY:	DATE	
Aluminum	390	μg/L	6.4	10	M Pattanayek	9/24/2009	
Antimony	U	μg/L	0.33	1	M Pattanayek	9/24/2009	
Arsenic	2.3J	μg/L	0.93	5	M Pattanayek	9/24/2009	
Barium	48	μg/L	2.5	5	M Pattanayek	9/24/2009	
Beryllium	0.11J	μg/L	0.11	1	M Pattanayek	9/24/2009	
Cadmium	U	μg/L	0.41	1	M Pattanayek	9/24/2009	
Chromium	U	μg/L	2.0	5	M Pattanayek	9/24/2009	
Cobalt	0.51J	μg/L	0.04	1	M Pattanayek	9/24/2009	
Copper	3.2	μg/L	0.38	1	M Pattanayek	9/24/2009	
Lead	0.18J	μg/L	0.10	1	M Pattanayek	9/24/2009	
Manganese	71	μg/L	0.42	1	M Pattanayek	9/24/2009	
Nickel	1.8	μg/L	0.25	1	M Pattanayek	9/24/2009	
Selenium	U	μg/L	1.3	5	M Pattanayek	9/24/2009	
Silver	U	μg/L	0.03	0.25	M Pattanayek	9/24/2009	
Thallium	0.18J	μg/L	0.03	1	M Pattanayek	9/24/2009	
Vanadium	U	μg/L	3.4	5	M Pattanayek	9/24/2009	
Zinc	3.7J	μg/L	1.9	5	M Pattanayek	9/24/2009	

K00002891006

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 0.1

Sampler Project Name: TVA Ash Spill

Project Site No.:

**Station No.:** 

EMORY000.1RO

Date/Time Collected:

09/22/2009 11:51

Sampler's Name: County:

Geoff Klein

Sample Matrix:

ROANE - 73

EFO:

Water Knoxville

Sampling Agency: Billing Code:

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced:

TDEC-WPC TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009

14:20

Received By:

E McCrary

**Field Determinations** 

pH:

7.04

pH Units

uMHO

Chlorine, residual:

Conductivity:

99

Temperature: 22.02 Dissolved Oxygen: 7.25

mg/L

Other:

Flow:

**CFS** 

TEST: Mercury	ME	ΓHOD: EPA 24	•		DATE	
ANALYTE	RESULT	RESULT UNITS MDL		MQL		ANALYZED BY:
Mercury	U	μg/L	0.029	0.2	A Bass	10/5/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002891007

**Project Name:** 

TVA-Ash Spill

Sample Description:

Clinch River mile 2.3

**Project Site No.:** 

Sampler Project Name: TVA Ash Spill

**Station No.:** 

CLINC002.3RO

Date/Time Collected:

09/22/2009 12:05

Sampler's Name: County:

Geoff Klein ROANE - 73

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville TDEC-WPC 327.34-20

**Billing Code:** Send Report To: Agency Invoiced:

TDEC-WPC TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009

14:20

Received By:

E McCrary

**Field Determinations** 

pH:

7.18

pH Units

**uMHO** 

mg/L

Chlorine, residual:

Conductivity:

149

22.83

Temperature: Dissolved Oxygen: 641

Other: Flow:

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	09/23/2009				M Pattanayek	9/23/2009

TEST: ICP	ME	ΓHOD: EPA 20	0.7			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	220	μg/L	2.9	10	A Wilson	10/4/2009

TEST: ICP-MS	ME <sup>-</sup>	THOD: EPA 200	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	220	μg/L	6.4	10	M Pattanayek	9/24/2009
Antimony	0.37J	μg/L	0.33	1	M Pattanayek	9/24/2009
Arsenic	3.7J	μg/L	0.93	5	M Pattanayek	9/24/2009
Barium	57	μg/L	2.5	5	M Pattanayek	9/24/2009
Beryllium	0.28J	μg/L	0.11	1	M Pattanayek	9/24/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	9/24/2009
Chromium	· U	μg/L	2.0	5	M Pattanayek	9/24/2009
Cobalt	0.48J	μg/L	0.04	1	M Pattanayek	9/24/2009
Copper	4.0	μg/L	0.38	1	M Pattanayek	9/24/2009
Lead	0.79J	μg/L	0.10	1	M Pattanayek	9/24/2009
Manganese	58	μg/L	0.42	1	M Pattanayek	9/24/2009
Nickel	1.6	μg/L	0.25	1	M Pattanayek	9/24/2009
Selenium	1.3J	μg/L	1.3	5	M Pattanayek	9/24/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	9/24/2009
Thallium	0.37J	μg/L	0.03	1	M Pattanayek	9/24/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	9/24/2009
Zinc	4.7J	μg/L	1.9	5	M Pattanayek	9/24/2009

K00002891007

Project Name:

TVA-Ash Spill

Sample Description:

Clinch River mile 2.3

Sampler Project Name: TVA Ash Spill

Project Site No.:

5

Station No.:

Date/Time Collected:

CLINC002.3RO 09/22/2009 12:05

Sampler's Name:

Geoff Klein

County:

ROANE - 73

Sample Matrix:

Water

EFO: Sampling Agency:

Knoxville TDEC-WPC

**Billing Code:** Send Report To: Agency Invoiced: 327.34-20 TDEC-WPC TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009

14:20

Received By:

E McCrary

**Field Determinations** 

pH:

7.18

pH Units

Chlorine, residual:

Conductivity:

149

**uMHO** 

Temperature: Dissolved Oxygen: 6.41

22.83

mg/L

Other:

Flow:

**CFS** 

TEST: Mercury	ME <sup>-</sup>					
ANALYTE	RESULT UNITS MDL		MQL	ANALYZED BY:	DATE	
Mercury	U	μg/L	0.029	0.2	A Bass	10/5/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002891008

Project Name:

TVA-Ash Spill

Sample Description:

Clinch River TVA Discharge Point

Project Site No.:

Sampler Project Name: TVA Ash Spill

Otation No.

5A

Station No.:

KingAshOutF2

Date/Time Collected: Sampler's Name:

09/22/2009 12:17

County:

Geoff Klein ROANE - 73

Sample Matrix:

Water

EFO:

Water Knoxville TDEC-WPC

Sampling Agency: Billing Code: Send Report To:

327.34-20 TDEC-WPC TDEC-WPC

Agency Invoiced: Priority Date:

Date/Time Received:

09/22/2009

14:20

Received By:

E McCrary

Field Determinations

pH:

7.21

pH Units

Chlorine, residual:

Conductivity:

129

иМНО

mg/L

Temperature:

23.94

4

Dissolved Oxygen: 6.93

Other: Flow:

TEST: Digestion Metals	MET	THOD: EPA 20	0.2			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	09/23/2009				M Pattanayek	9/23/2009

TEST: ICP METHOD: EPA 200.7						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	410	μg/L	2.9	10	A Wilson	10/4/2009

TEST: ICP-MS	ME	THOD: EPA 200	0.8			
ANALYTE	RESULT	UNITS MDL		MQL	ANALYZED BY:	DATE
Aluminum	450	μg/L	6.4	10	M Pattanayek	9/24/2009
Antimony	0.90J	μg/L	0.33	1	M Pattanayek	9/24/2009
Arsenic	7.8	μg/L	0.93	5	M Pattanayek	9/24/2009
Barium	65	μg/L	2.5	5	M Pattanayek	9/24/2009
Beryllium	0.13J	μg/L	0.11	1	M Pattanayek	9/24/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	9/24/2009
Chromium	2.3J	μg/L	2.0	5	M Pattanayek	9/24/2009
Cobalt	0.52J	μg/L	0.04	1	M Pattanayek	9/24/2009
Copper	7.2	μg/L	0.38	1	M Pattanayek	9/24/2009
Lead	0.27J	μg/L	0.10	1	M Pattanayek	9/24/2009
Manganese	68	μg/L	0.42	1	M Pattanayek	9/24/2009
Nickel	1.7	μg/L	0.25	1	M Pattanayek	9/24/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	9/24/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	9/24/2009
Thallium	0.27J	μg/L	0.03	1	M Pattanayek	9/24/2009
Vanadium	7.8	μg/L	3.4	5	M Pattanayek	9/24/2009
Zinc	5.2	μg/L	1.9	5	M Pattanayek	9/24/2009

K00002891008

**Project Name:** 

TVA-Ash Spill

Sample Description:

Clinch River TVA Discharge Point

Sampler Project Name: TVA Ash Spill

**Project Site No.:** 

Station No.:

5A

KingAshOutF2

Date/Time Collected:

09/22/2009 12:17

Sampler's Name: County:

Geoff Klein ROANE - 73

Sample Matrix:

Water

EFO:

Knoxville

Sampling Agency:

TDEC-WPC

**Billing Code:** Send Report To: 327.34-20 TDEC-WPC TDEC-WPC

Agency Invoiced: **Priority Date:** 

Date/Time Received:

09/22/2009

14:20

Received By:

**TEST: Mercury** 

E McCrary

ME.	$\Gamma$	$D \cdot E$	ĐΛ	245	1

**Field Determinations** 

**Dissolved Oxygen:** 6.93

Chlorine, residual:

Conductivity:

Temperature:

7.21

129

23.94

pH Units

uMHO

mg/L

**CFS** 

pH:

Other:

Flow:

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	A Bass	10/5/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** MQL - Method Quantitation Limit

K00002891009

**Project Name:** 

TVA-Ash Spill

Sample Description:

Clinch River mile 4.5 near Sugar Grove Valley R Chlorine, residual:

Sampler Project Name: TVA Ash Spill

Project Site No.:

Station No.:

CLINC004.5RO

Date/Time Collected:

09/22/2009 12:37

Sampler's Name: County:

Geoff Klein

ROANE - 73

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville TDEC-WPC

**Billing Code:** Send Report To: 327.34-20 TDEC-WPC TDEC-WPC

Agency Invoiced: **Priority Date:** 

Date/Time Received:

09/22/2009 14:20

Received By:

E McCrary

**Field Determinations** 

pH:

7.18

pH Units

Conductivity:

118

uMHO

Temperature: Dissolved Oxygen: 7.06

21.99

mg/L

Other:

Flow:

TEST: Digestion Metals	MET	HOD: EPA 20	0.2			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	09/23/2009				M Pattanayek	9/23/2009

TEST: ICP	MET	THOD: EPA 20	0.7			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	250	μg/L	2.9	10	A Wilson	10/4/2009

TEST: ICP-MS	ME <sup>-</sup>	THOD: EPA 200	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	170	μg/L	6.4	10	M Pattanayek	9/24/2009
Antimony	Ŭ	μg/L	0.33	1	M Pattanayek	9/24/2009
Arsenic	U	μg/L	0.93	5	M Pattanayek	9/24/2009
Barium	36	μg/L	2.5	5	M Pattanayek	9/24/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	9/24/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	9/24/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	9/24/2009
Cobalt	0.21J	μg/L	0.04	1	M Pattanayek	9/24/2009
Copper	0.89J	μg/L	0.38	1	M Pattanayek	9/24/2009
Lead	0.47J	μg/L	0.10	1	M Pattanayek	9/24/2009
Manganese	42	μg/L	0.42	1	M Pattanayek	9/24/2009
Nickel	1.0	μg/L	0.25	1	M Pattanayek	9/24/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	9/24/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	9/24/2009
Thallium	0.15J	μg/L	0.03	1	M Pattanayek	9/24/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	9/24/2009
Zinc	U	μg/L	1.9	5	M Pattanayek	9/24/2009

K00002891009

**Project Name:** 

TVA-Ash Spill

Sample Description:

Clinch River mile 4.5 near Sugar Grove Valley R Chlorine, residual:

**Field Determinations** 

Dissolved Oxygen: 7.06

Conductivity:

Temperature:

pH:

Other:

Flow:

7.18

118

21.99

pH Units

**uMHO** 

mg/L

**CFS** 

**Project Site No.:** 

Sampler Project Name: TVA Ash Spill

**Station No.:** 

CLINC004.5RO

Date/Time Collected: Sampler's Name:

09/22/2009 12:37 Geoff Klein

County:

ROANE - 73

Sample Matrix:

Water

EFO: Sampling Agency: Knoxville TDEC-WPC

Billing Code: Send Report To: Agency Invoiced: 327.34-20 TDEC-WPC TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009

14:20

Received By:

E McCrary

ME					
RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
U	μg/L	0.029	0.2	A Bass	10/5/2009
		RESULT UNITS	NEOGET OTTO	RESULT UNITS MDL MQL	RESULT UNITS MDL MQL ANALYZED BY:

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002891010

**Project Name:** 

TVA-Ash Spill

Sample Description:

Clinch River mile 4.5 near Sugar Grove Valley R Chlorine, residual:

Sampler Project Name: TVA Ash Spill

Project Site No.:

6FD

Station No.:

CLINC004.5RO

Date/Time Collected:

09/22/2009 12:37

Sampler's Name: County:

Geoff Klein

Sample Matrix:

ROANE - 73

Water

EFO:

Knoxville

Sampling Agency: **Billing Code:** 

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced: TDEC-WPC TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009 14:20

Received By:

E McCrary

Field	Determinations
pH:	7.18

pH:

118 Conductivity:

Temperature: 21.99

Dissolved Oxygen: 7.06

Other:

**CFS** Flow:

pH Units

uMHO

mg/L

TEST: Digestion Metals	MET	HOD: EPA 20	0.2			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	09/23/2009				M Pattanayek	9/23/2009

TEST: ICP	MET	THOD: EPA 20	0.7			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	193	μg/L	2.9	10	A Wilson	10/4/2009

TEST: ICP-MS	ME	ΓHOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	150	μg/L	6.4	10	M Pattanayek	9/24/2009
Antimony	U	μg/L	0.33	1	M Pattanayek	9/24/2009
Arsenic	U	μg/L	0.93	5	M Pattanayek	9/24/2009
Barium	43	μg/L	2.5	5	M Pattanayek	9/24/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	9/24/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	9/24/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	9/24/2009
Cobalt	0.23J	μg/L	0.04	1	M Pattanayek	9/24/2009
Copper	2.0	μg/L	0.38	1	M Pattanayek	9/24/2009
Lead	0.50J	μg/L	0.10	1	M Pattanayek	9/24/2009
Manganese	47	μg/L	0.42	1	M Pattanayek	9/24/2009
Nickel	1.2	μg/L	0.25	1	M Pattanayek	9/24/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	9/24/2009
Silver	Ú	μg/L	0.03	0.25	M Pattanayek	9/24/2009
Thallium	0.15J	μg/L	0.03	1	M Pattanayek	9/24/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	9/24/2009
Zinc	. 4.3J	μg/L	1.9	5	M Pattanayek	9/24/2009

K00002891010

**Project Name:** 

TVA-Ash Spill

Sample Description:

Clinch River mile 4.5 near Sugar Grove Valley R Chlorine, residual:

Project Site No.:

Sampler Project Name: TVA Ash Spill

6FD

**Station No.:** CLINC004.5RO

Date/Time Collected: Sampler's Name:

09/22/2009 Geoff Klein

County:

Sample Matrix:

ROANE - 73

EFO: Sampling Agency: Water Knoxville

**Billing Code:** Send Report To: TDEC-WPC 327.34-20 TDEC-WPC TDEC-WPC

**Agency Invoiced: Priority Date:** 

Date/Time Received:

09/22/2009

14:20

12:37

Received By:

E McCrary

TEST: Mercury	METHOD: EPA 245.1					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	ua/L	0.029	0.2	A Bass	10/5/2009

**Field Determinations** 

Dissolved Oxygen: 7.06

Conductivity:

Temperature:

7.18

118

21.99

pH Units

**uMHO** 

mg/L

**CFS** 

pH:

Other:

Flow:

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002891011

TVA-Ash Spill

**Project Name:** Sample Description:

pH: Clinch River mile 4.5 near Sugar Grove Valley R Chlorine, residual:

Sampler Project Name: TVA Ash Spill

Project Site No.:

6FB

Station No.:

CLINC004.5RO

Date/Time Collected: Sampler's Name:

09/22/2009 12:37 Geoff Klein

County:

ROANE - 73

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville TDEC-WPC 327.34-20

**Billing Code:** Send Report To: Agency Invoiced:

TDEC-WPC TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009 14:20

Received By:

E McCrary

Conductivity:

**Field Determinations** 

Temperature: Dissolved Oxygen:

Other: Flow:

TEST: Digestion Metals	MET	HOD: EPA 20	0.2			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	09/23/2009				M Pattanayek	9/23/2009

TEST: ICP	ME	THOD: EPA 20	0.7			
ANALYTE	RESULT	UNITS	MDL.	MQL	ANALYZED BY:	DATE
Iron	U	μg/L	2.9	10	A Wilson	10/4/2009

TEST: ICP-MS	ME"	THOD: EPA 200	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	U	μg/L	6.4	10	M Pattanayek	9/24/2009
Antimony	U	μg/L	0.33	1	M Pattanayek	9/24/2009
Arsenic	U	μg/L	0.93	5	M Pattanayek	9/24/2009
Barium	Ū	μg/L	2.5	5	M Pattanayek	9/24/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	9/24/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	9/24/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	9/24/2009
Cobalt	U	μg/L	0.04	1	M Pattanayek	9/24/2009
Copper	U	μg/L	0.38	1	M Pattanayek	9/24/2009
Lead	0.13J	μg/L	0.10	1	M Pattanayek	9/24/2009
Manganese	U	μg/L	0.42	1	M Pattanayek	9/24/2009
Nickel	U	μg/L	0.25	1	M Pattanayek	9/24/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	9/24/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	9/24/2009
Thallium	0.13J	μg/L	0.03	1	M Pattanayek	9/24/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	9/24/2009
Zinc	Ŭ	μg/L	1.9	5	M Pattanayek	9/24/2009

Sample Description:

K00002891011

**Project Name:** 

TVA-Ash Spill

Clinch River mile 4.5 near Sugar Grove Valley R Chlorine, residual:

Sampler Project Name: TVA Ash Spill

Project Site No.:

6FB

CLINC004.5RO

Date/Time Collected:

09/22/2009

Sampler's Name: County:

**Station No.:** 

Geoff Klein

Sample Matrix:

ROANE - 73

EFO:

Water Knoxville

Sampling Agency: **Billing Code:** 

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced:

TDEC-WPC TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009

14:20

12:37

Received By:

TEST: Mercury

E McCrary

MET	THOD: EPA 24	5.1	
RESULT	UNITS	MDL	MQL

**Field Determinations** 

Conductivity:

Temperature:

Dissolved Oxygen:

**CFS** 

DATE

ANALYZED BY:

pH:

Other:

Flow:

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	A Bass	10/5/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit



## STATE OF TENNESSEE DEPARTMENT OF HEALTH **ENVIRONMENTAL LABORATORIES**

TDH: Lab Services JRL Lab Services - Jackson Regional Lab Jackson, TN 38301 731-426-0686

TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201

TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

K00002891

**Knoxville Regional Laboratory** 

Lab ID:

Sent To:

**Greg Denton** 

TDEC-WPC

6th Floor, L & C Tower Annex

401 Church Street

Nashville, TN 37243-1534

Michael Atchley TDEC-WPC

Knoxville FO

3711 Middlebrook Pike Knoxville, TN 37921

Sampling Agency: TDEC: Division of Water Pollution Control

**Billing Code:** 327.34-20

> This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

K00002891001

Project Name:

TVA-Ash Spill

Sample Description:

Sampler Project Name: TVA Ash Spill

Emory River Mile 12.1

**Project Site No.:** 

Station No.:

**EMORY012.1RO** 

Date/Time Collected:

09/22/2009 13:13

Sampler's Name:

Geoff Klein

County: Sample Matrix: **ROANE - 73** 

EFO:

Water

Sampling Agency:

Knoxville

**Billing Code:** 

TDEC-WPC

Send Report To:

327.34-20

**Agency Invoiced:** 

TDEC-WPC TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009 14:20

Received By:

E McCrary

**Field Determinations** pH: 7.42

Chlorine, residual:

Conductivity:

62 uMHO

Temperature:

21.31 **Dissolved Oxygen: 9.06** 

mg/L

Other:

Flow:

**CFS** 

pH Units

TEST: Alkalinity, Total	METHOD: EPA 310.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Total Alkalinity	17	mg/L	3.8	10	S Burchfield	9/28/2009	

TEST: Hardness, Calcium	ME	THOD: SM 350	0-Ca D			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	17	mg/L	0.7	1	P Leathers	9/28/2009

TEST: Residue, Settleable	METHOD: SM 2540F					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	9/23/2009

TEST: Residue, Suspended	ME	THOD: SM 254	0D			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	15	mg/L	10	10	A Peeples	9/25/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

MQL - Method Quantitation Limit

K00002891002

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 2.1

Sampler Project Name: TVA Ash Spill **Project Site No.:** 

Station No.:

**Date/Time Collected:** 

EMORY002.1RO 09/22/2009 11:00

Sampler's Name:

Geoff Klein

County: Sample Matrix: ROANE - 73

EFO:

Water

Knoxville

Sampling Agency: **Billing Code:** 

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced: **TDEC-WPC** TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009 14:20

Received By:

E McCrary

Field	Determinations	
	7	~~

pH:

7.05

pH Units

Chlorine, residual:

Conductivity:

69 20.77 uMHO

Temperature: Dissolved Oxygen: 8.06

mg/L

Other:

Flow:

**CFS** 

TEST: Alkalinity, Total	ME	THOD: EPA 3	310.2				
ANALYTE	RESULT	UNITS		MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	20	mg/L	•	3.8	10	S Burchfield	9/28/2009

TEST: Hardness, Calcium	ME.	THOD: SM 350	0-Ca D			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	19	mg/L	0.7	1	P Leathers	9/28/2009

TEST: Residue, Settleable METHOD: SM 2540F						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	9/23/2009

TEST: Residue, Suspended METHOD: SM 2540D						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	26	mg/L	10	10	A Peeples	9/25/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

K00002891003

**Project Name:** 

TVA-Ash Spill

Sample Description:

Approx. 100' d/s from middle dredge point

Sampler Project Name: TVA Ash Spill **Project Site No.:** 

2A

**Station No.:** 

**Date/Time Collected:** 

Dredge Plume

Sampler's Name:

09/22/2009 11:15

County:

Geoff Klein ROANE - 73

Sample Matrix:

EFO:

Water Knoxville

Sampling Agency: **Billing Code:** 

TDEC-WPC 327.34-20

Send Report To: **Agency Invoiced:** 

TDEC-WPC TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009 14:20

Received By:

E McCrary

**Field Determinations** 

pH:

7.05

pH Units

**uMHO** 

Chlorine, residual:

Conductivity:

88

21.14

Temperature:

**Dissolved Oxygen:** 7.54

mg/L

Other:

Flow:

**CFS** 

TEST: Alkalinity, Total	ME	THOD: EPA 31				
ANALYTE	RESULT	UNITS	MDL.	MQL	ANALYZED BY:	DATE
Total Alkalinity	24	mg/L	3.8	10	S Burchfield	9/28/2009

TEST: Hardness, Calcium	ME.	THOD: SM 350	0-Ca D			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	23	mg/L	0.7	1	P Leathers	9/28/2009

TEST: Residue, Settleable	ME.					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	0.1	ml/L	0.10	0.10	P Leathers	9/23/2009

TEST: Residue, Suspended	ME.						
ANALYTE	RESULT UNITS MD		MDL	MQL	ANALYZED BY:	DATE	
Total Suspended Solids	91	mg/L	10	10	A Peeples	9/25/2009	

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

K00002891004

**Project Name:** 

TVA-Ash Spill

Sample Description:

Sampler Project Name: TVA Ash Spill

Emory River mile 1.9 at underwater weir

**Project Site No.:** 

2B

**Station No.:** 

Date/Time Collected:

EMORY001.9RO 11:24

Sampler's Name:

09/22/2009 Geoff Klein

County:

Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville

**Billing Code:** 

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced:

TDEC-WPC

TDEC-WPC

Received By:

Priority Date:				
Date/Time Received:	09/22/2009	14:20		
Pagaiyad By:	E McCrany			

**Field Determinations** 

**Dissolved Oxygen:** 7.84

Chlorine, residual:

Conductivity:

Temperature:

pH:

Other:

Flow:

6.98

74

20.92

pH Units

**uMHO** 

mg/L

**CFS** 

TEST: Alkalinity, Total	ME.					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	21	mg/L	3.8	10	S Burchfield	9/28/2009

TEST: Hardness, Calcium	WE.					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	20	mg/L	0.7	1	P Leathers	9/28/2009

TEST: Residue, Settleable	METHOD: SM 2540F						
ANALYTE	RESULT	SULT UNITS		MQL	ANALYZED BY:	DATE	
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	9/23/2009	

TEST: Residue, Suspended METHOD: SM 2540D						
ANALYTE	RESULT UNITS MDL		MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	53	mg/L	10	10	A Peeples	9/25/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

K00002891005

**Project Name:** 

TVA-Ash Spill

Sample Description:

Sampler Project Name: TVA Ash Spill

Emory River mile 1.7

**Project Site No.:** 

3

**Station No.:** 

EMORY001.7RO

**Date/Time Collected:** 

09/22/2009 11:38

Sampler's Name:

Geoff Klein

County: Sample Matrix: ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville

**Billing Code:** 

TDEC-WPC

327.34-20

Send Report To: Agency Invoiced: TDEC-WPC TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009

14:20

Received By:

E McCrary

**Field Determinations** 

pH:

Chlorine, residual:

78

6.95

pH Units

Conductivity:

21.03

**uMHO** 

Temperature:

**Dissolved Oxygen:** 7.69

mg/L

Other:

Flow:

CFS

TEST: Alkalinity, Total	METHOD: EPA 310.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Total Alkalinity	23	mg/L	3.8	10	S Burchfield	9/28/2009	

TEST: Hardness, Calcium	ME.					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	21	mg/L	0.7	1	P Leathers	9/28/2009

TEST: Residue, Settleable METHOD: SM 2540F						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U ·	ml/L	0.10	0.10	P Leathers	9/23/2009

TEST: Residue, Suspended	ME <sup>-</sup>	THOD: SM 254				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	31	mg/L	10	10	A Peeples	9/25/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

**MQL - Method Quantitation Limit** 

K00002891006

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 0.1

Sampler Project Name: TVA Ash Spill

**Project Site No.:** 

**Station No.:** 

EMORY000.1RO

**Date/Time Collected:** 

09/22/2009 11:51

Sampler's Name:

Geoff Klein

County: Sample Matrix: ROANE - 73

Water

EFO:

Knoxville

Sampling Agency: **Billing Code:** 

TDEC-WPC

327,34-20

Send Report To: Agency Invoiced: **TDEC-WPC** TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009 14:20

Received By:

E McCrary

Dissolved Oxygen: 7.25 mg/L Other:

**Field Determinations** 

Chlorine, residual:

Conductivity:

Temperature:

pH:

Flow: CFS

7.04

99

22.02

pH Units

uMHO

TEST: Alkalinity, Total	METHOD: EPA 310.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Total Alkalinity	29	mg/L	3.8	10	S Burchfield	9/28/2009	

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS MDL		MQL	ANALYZED BY:	DATE
Calcium hardness	27	mg/L	0.7	1	P Leathers	9/28/2009

TEST: Residue, Settleable	METHOD: SM 2540F						
ANALYTE	RESULT	MQL	ANALYZED BY:	DATE			
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	9/23/2009	

TEST: Residue, Suspended	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	27	mg/L	10	10	A Peeples	9/25/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

K00002891007

**Project Name:** 

TVA-Ash Spill

Sample Description:

Clinch River mile 2.3

Sampler Project Name: TVA Ash Spill

**Project Site No.:** 

Station No.:

CLINC002.3RO

**Date/Time Collected:** 

09/22/2009 12:05

Sampler's Name: County:

Geoff Klein

Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville

**Billing Code:** 

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced: **TDEC-WPC** TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009 14:20

Received By:

E McCrary

**Field Determinations** 

pH:

7.18

pH Units

Chlorine, residual:

Conductivity:

149

uMHO

Temperature:

22.83 Dissolved Oxygen: 6.41

mg/L

Other:

Flow:

**CFS** 

TEST: Alkalinity, Total	ME	THOD: EPA 31				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	63	mg/L	3.8	10	S Burchfield	9/28/2009

TEST: Hardness, Calcium	ME.	THOD: SM 350				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	58	mg/L	0.7	1	P Leathers	9/28/2009

TEST: Residue, Settleable	ME	THOD: SM 254	****		·		
ANALYTE	RESULT	UNITS	UNITS MDL M		ANALYZED BY:	DATE	
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	9/23/2009	

TEST: Residue, Suspended	METHOD: SM 2540D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	10	mg/L	10	10	A Peeples	9/25/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

K00002891008

**Project Name:** 

TVA-Ash Spill

Sample Description:

Sampler Project Name: TVA Ash Spill

Clinch River TVA Discharge Point

**Project Site No.:** 

Station No.:

5A

**Date/Time Collected:** 

KingAshOutF2

Sampler's Name:

09/22/2009 12:17

County:

Geoff Klein

Sample Matrix:

**ROANE - 73** 

EFO:

Water

Sampling Agency:

Knoxville TDEC-WPC

Billing Code: Send Report To: 327.34-20 TDEC-WPC

Agency Invoiced:

TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009 14:20

Received By:

E McCrary

Field Determinations

:Hq

7.21

pH Units

Chlorine, residual:

Conductivity:

129 23.94 uMHO

Temperature:

**Dissolved Oxygen: 6.93** 

mg/L

Other:

Flow:

**CFS** 

TEST: Alkalinity, Total	METHOD: EPA 310.2					
ANALYTE	RESULT UNITS		MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	36	mg/L	3.8	10	S Burchfield	9/28/2009

TEST: Hardness, Calcium	MET					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	35	mg/L	0.7	1	P Leathers	9/28/2009

TEST: Residue, Settleable METHOD: SM 2540F						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	9/23/2009

TEST: Residue, Suspended	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	31	mg/L	10	10	A Peeples	9/25/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

Sample Description:

K00002891009

**Project Name:** 

TVA-Ash Spill

Clinch River mile 4.5 near Sugar Grove Valley F Chlorine, residual:

**Field Determinations** 

**Dissolved Oxygen:** 7.06

Conductivity:

Temperature:

7.18

118

21.99

pH Units

**uMHO** 

mg/L

**CFS** 

pH:

Other:

Flow:

Sampler Project Name: TVA Ash Spill

**Project Site No.: Station No.:** 

CLINC004.5RO

**Date/Time Collected:** 

09/22/2009 12:37

Sampler's Name: County:

Geoff Klein

Sample Matrix:

ROANE - 73

Water

EFO: Sampling Agency: Knoxville

**Billing Code: Send Report To:**  TDEC-WPC 327.34-20 TDEC-WPC

Agency Invoiced:

TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009 14:20

Received By:

E McCrary

TEST: Alkalinity, Total	ME.					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	69	mg/L	3.8	10	S Burchfield	9/28/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	57	mg/L	0.7	1	P Leathers	9/28/2009

TEST: Residue, Settleable	ME.	THOD: SM 254				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U	ml/L.	0.10	0.10	P Leathers	9/23/2009

TEST: Residue, Suspended	METHOD: SM 2540D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	10	mg/L	10	10	A Peeples	9/25/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

Sample Description:

K00002891010

**Project Name:** 

TVA-Ash Spill

Clinch River mile 4.5 near Sugar Grove Valley F Chlorine, residual:

**Field Determinations** 

Dissolved Oxygen: 7.06

Conductivity:

Temperature:

7.18

118

21.99

pH Units

**uMHO** 

mg/L

**CFS** 

pH:

Other:

Flow:

**Project Site No.:** 

Sampler Project Name: TVA Ash Spill

6FD

**Station No.:** 

**Date/Time Collected:** 

CLINC004.5RO 09/22/2009 12:37

Sampler's Name:

Geoff Klein

County: Sample Matrix: **ROANE - 73** 

EFO:

Water

Sampling Agency:

Knoxville TDEC-WPC

**Billing Code: Send Report To:** 

327.34-20 TDEC-WPC TDEC-WPC

**Agency Invoiced: Priority Date:** 

Date/Time Received:

09/22/2009 14:20

Received By:

E McCrary

TEST: Alkalinity, Total	ME.	THOD: EPA 31	0.2			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	71	mg/L	3.8	10	S Burchfield	9/28/2009

TEST: Hardness, Calcium	ME	THOD: SM 350				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	61	mg/L	0.7	1	P Leathers	9/28/2009

TEST: Residue, Settleable	ME:					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	9/23/2009

TEST: Residue, Suspended	METHOD: SM 2540D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	10	mg/L	10	10	A Peeples	9/25/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

MQL - Method Quantitation Limit

K00002891011

**Project Name:** Sample Description: TVA-Ash Spill

Clinch River mile 4.5 near Sugar Grove Valley R Chlorine, residual:

**Field Determinations** 

Conductivity:

Temperature:

**Dissolved Oxygen:** 

**CFS** 

pH:

Other:

Flow:

**Project Site No.:** 

Sampler Project Name: TVA Ash Spill

6FB

Station No.:

**Date/Time Collected:** 

CLINC004.5RO 12:37

Sampler's Name:

09/22/2009 Geoff Klein

County:

Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville TDEC-WPC

**Billing Code:** Send Report To: 327.34-20 TDEC-WPC

Agency Invoiced:

TDEC-WPC

**Priority Date:** 

Date/Time Received:

09/22/2009 14:20

Received By:

E McCrary

TEST: Alkalinity, Total	ME					
ANALYTE	RESULT UNITS MDL		MQL	ANALYZED BY:	DATE	
Total Alkalinity	U	mg/L	3.8	10	S Burchfield	9/28/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Calcium hardness	U	mg/L	0.7	1	P Leathers	9/28/2009	

TEST: Residue, Suspended	METHOD: SM 2540D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	U	mg/L	10	10	A Peeples	9/25/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit**